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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/658,225
Filing Date: September 08, 2003
Appellant(s): BRASK, JUSTIN K.

Justin K. Brask
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed September 8, 2008, appealing from the Office action mailed April 1, 2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The Examiner substantially agrees with the claimed subject matter contained in the brief.

Independent claim 13 has been discussed on page 4 of the brief. Independent claim 18 differs from independent claim 13 in that it recites a media in which the chelating agents are employed. This is discussed by Appellant in regards to claim 14 on pages 4 and 5 of the brief and paragraphs 0032 and 0036 of the specification.

Independent claim 34 differs from independent claim 13 in that it recites masking rather than applying a photoresist which is patterned. This is described in paragraph 0034 of the specification. In addition, one of ordinary skill in the art recognizes that patterning a photoresist layer can be referred to as masking a layer to be processed.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,979,647	BOJKOV et al.	12-2005

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

> only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 13, 14, 16-18, 20-25 and 32-40 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Bojkov et al. (US Patent 6,979,647).

Bojkov et al. disclose a method for chemical etch control of noble metals in the presence of less noble metals. The removal of a first metal from the presence of a second metal is accomplished by placing the first and second metals in an oxidizing etchant solution containing a chelating agent which selectively forms a complex with the first metal (column 1, line 64 to column 2, line 6). Resist layer 201 defines the opening which exposes the metal seed layer (column 3, lines 63-67). The wafers are immersed in an oxidizing etchant solution which is usually a highly acidic bath. Chelating agents are added to the solution which binds the seed ions into chemical complexes. Dependent on the metal used in the seed layer one can select chelating agents specific for certain metals (column 5, lines 13-67). It would have been obvious to one of ordinary skill in the art to have used more than one chelating agent if more than one metal is present because Bojkov et al. teach that the chelating agents are chosen dependent on the metal.

(10) Response to Argument

Appellant argues that the claims recite "two or more chelating agents" and then equates this to "two or more chelating species". "Agent" is the term used in the specification. The term "species" has not been used in the specification or claims.

Appellant then argues that when Bojkov et al. use the term "chelating agent" it is a reference to multiple atoms/molecules of the same chelating agent and more than one atom/molecule of chelating agent is needed to bind atoms/ions of metal. One of ordinary skill in the art and chemistry in general understands that one atom/molecule of chelating agent could not be applied to a surface to etch one atom/ion of metal --- multiple atoms/molecules of the chelating agent are added to interact with multiple atoms/ions of metal. It is understood that the term "chelating agent" refers to the compound being added to accomplish the etching. It would not be reasonable to interpret "chelating agent" as meaning one atom/molecule. It is understood that the compound is being added, not one atom/molecule of the compound. For example, both the Appellant's specification (paragraph 0029) and Bojkov et al. (column 5, lines 58-65), teach the use of ethylenediaminetetraacetic acid (EDTA) as a possible chelating agent. It is understood that the compound EDTA is being added in a suitable amount necessary to accomplish the etching, not just one atom/molecule of EDTA.

Appellant argues that Bojkov et al. teach the use of only one chelating agent and only copper as the metal. Bojkov et al. refers to "chelating agents" in column 5, lines 28-31, for example. Bojkov et al. teaches (in column 5, lines 45-48):

> **Dependent on the metals used in seed layer 104, one can select chelating agents specific for certain metals or metal families, or chelating agents which can bind with nearly any metal ions with different association constants. Most chelating agents contain one or more strongly electro-negative atoms such as oxygen, nitrogen, or sulfur. In a molecule, these atoms tend to be strongly polar and will have a slightly negative charge associated with them, which will pull positively charged metal ions to the molecule.**

This quote is providing a teaching for (1) more than one chelating agent as well as (2) different metals. This passage teaches that the chelating agents are chosen specifically for the metal of interest. It would have been obvious to one of ordinary skill in the art, on reading this passage, that one would have to choose a specific chelating agent that would work with the metal of interest or else etching may not occur or not occur to the desired completion. In addition, one of ordinary skill in the art would realize that if two metals are present in the layer to be etched that a chelating agent would be needed for each metal to accomplish the etching.

Bojkov et al. also teaches (in column 5, lines 54-57):

> For the metals of copper, titanium and tungsten, which are preferably used in the seed layer 104, the following chelating agents are preferred, but it should be understood that this list is not exclusive.

This teaching provides support for more than copper metal being contemplated by Bojkov et al.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Kathleen Duda/
Primary Examiner

Conferees:

/Jennifer Michener/

QAS, TC1700

/Mark F. Huff/

Supervisory Patent Examiner, Art Unit 1795